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By love of country and of kind,
And magic of a master mind.

As from yon dull and stagnant lake,
The streams begin to live, and take
Their course thro' Clara's wooded vale,
Kiss'd by the health infusing gale,
Heedless of wealth their banks may hold,
They wind, neglectful of the gold;
Yet seem to hope a Shakspeare's name,
To give our *Avon* deathless fame—
So, from the savage barren heart,
The streams of science and of art,
May spread their soft refreshing green,
And vivify the moral scene.

O vanish'd hope!—O transient boast!
O COUNTRY gain'd but to be lost!
Gain'd by a nation, rais'd, inspir'd;
By eloquence and virtue fir'd;
By trans-Atlantic glory stung;
By GRATTAN's energetic tongue;
By Parliament that felt its trust;
By Britain *terrify'd* and just.
Lost...by thy chosen children sold,
And conquer'd not by steel, but gold.
Sold in a bargain base, absurd,
Dupe to a courtier's pledge—his word—
His purpose serv'd, then, nothing loth,
The word is broken by the oath—

The courtier skulks behind the throne,
And, sold our honour, saves his own;
Lost—by a low and servile *great*,
Who smile upon their country's fate,
Crouching to gain the public choice,
And sell it by their venal voice.
Lost—to the world, and future fame—
Remember'd only in a name,
Once, in the courts of Europe known,
To claim a self-dependent throne.
Thy ancient records torn, and tost,
Upon the waves that beat thy coast,
The mock'ry of a mongrel race,
Sordid, illiterate, and base.
To science lost—and letter'd truth,
The genius of thy native youth,
To Can and Isis glad to roam,
Nor keep a heart nor hope for home,
Thy spark of independence dead,
And Life of Life, thy Freedom fled!

Where shall her sad remains be laid?
Where invoke her solemn shade?

HERE—be the Mausoleum plac'd—
In this vast vault, this awful waste:
Yon mould'ring pillar, 'midst the gloom,
Finger of Time! shall point her tomb,
While silence of the evening hour,
Hangs o'er GLENDALLOCH's hallow'd
towers.

FOREIGN LITERATURE.

(This article is furnished by a Gentleman in London.)

A RECENT importation of journals from France, enables us to present our readers with a brief account of what has occurred most worthy notice in the arts, sciences, and literature, on the continent up to October last. As an object of primary attention, we shall begin with Mr. Delambre's analysis of the labours of the mathematical and physical class of the French institute, during the year 1809. The account of the proceedings of the class in 1808, shewed with what success the attention of some able geometers had been turned to one of the most important problems, the stability of the planetary system: Mr. Lagrange has now pursued his investigation still farther, extending it to a sys-

tem of bodies acting on each other in any manner whatever. He has likewise simplified his formulæ considerably.

Mr. Poisson, as a continuation of his work on the variations of the elements of the planets, read a paper on the rotation of the earth: the results of his investigation are, that the rotation will always coincide very nearly with the shortest principal axes, and that the poles will always answer to the same points of the surface. Different hypotheses have been framed, in which oscillations of this axis are introduced: but Mr. P. observes, these are not confirmed by astronomical observations. If the oscillation were very small, however, it would pro-

bably be unnoticed. Suppose it were of 1" only; and the pole, instead of going through the whole of its circle in one year, went through no more than 350° : then in nine years it would be 0, and in 18 years it would be 1" in the opposite direction, so as to make a difference of two seconds in the latitude in that time. This would account nearly for Bradley's finding the latitude of Greenwich at one time $51^\circ 28' 41.5''$, and at another only $51^\circ 28' 38''$. Thus too the latitude of the observatory at Paris was found at one time to be $48^\circ 50' 10''$, and at other times $48^\circ 50' 14''$, by Lacaille, Cagnoli, Meckain, and Delambre. These differences might be ascribed to an oscillation of at least 2", and a period about 15 years: but perhaps they may be accounted for more justly by errors in observations, and inaccuracies in the instruments not sufficiently known. It is a point however, that merits verification with an instrument, in which no error of collimation is to be apprehended: and it would be sufficient to observe with this the meridian altitudes of the polestar above and below the pole, for a few years in December and January; for we know from the analysis of Mr. P. that the period is not an entire year, so that the latitude must experience a gradual variation, if observed constantly at the same period.

The following is the conclusion of Mr. P.'s paper: "The perturbations of the rotary motion of solid bodies of any given figure, owing to any given attractive forces, depend on the same equations as the perturbations of the motion of a point attracted toward a fixed centre: thus the precession of the equinoxes, and the nutation of the earth's axis, will be expressed by the same formulæ, as give the variations of the elliptical elements of the planets."

Messrs. Laplace and Bouvard each read a paper on the rotary motion of the moon, by means of which it constantly presents the same face to the earth, with little variation. Instead of the approximation of Mayer, Mr. Bouvard gives a method of calculation, which is equally precise and direct; and in its results agrees exactly with those of Mayer: a fresh proof of the ability of that great astronomer, whose instruments were but indifferent, while Mr. B. had an excellent equatorial by Bellet.

Mr. Burckhardt read a paper on perturbations of the third, fourth, fifth, and sixth orders. He first gives a theorem, for reducing to the theory of the perturbing planet the differentials calculated by the planet perturbed, because these changes are continually occurring in calculations of this sort. He has found that the coefficients of certain terms of the third order, have the third differences equal to the cube of 3; those of the fourth order, the fourth differences equal to the fourth power of 4; those of the fifth, to the fifth power of 5; and that generally we arrive at constant differences.

To this paper was added another on the calculations necessary for determining the coefficients of the different inequalities of the moon. As a trial of his method, Mr. B. proposed to determine, from the observations of Dr. Maskelyne, an inequality, which should have for its argument the mean anomaly of the moon increased by the argument that regulates the inequality, the period of which is 180 years. Nine hundred observations gave him $4.7''$ for the coefficient. This paper was added to the former, and closes the memoirs of the institute for 1809.

In another paper the same astronomer calculated the perturbations of Halley's comet, which reappeared in 1759, and is expected about 1835.

He has found, that the attraction of the earth will have made an alteration of sixteen days in the period of its revolution.

Mr. Burckhardt, who has formed the plan of a grand geodetic operation for connecting observations, differing greatly in longitude, was sensible how important an exact determination of the azimuths would be to its success; and accordingly has examined the advantages and disadvantages peculiar to each of the known methods.

Mr. B. also examined the dip with two different needles, the first of which gave $68^{\circ} 47.4'$, the other $65^{\circ} 47.4'$, on the 10th and 20th of August 1809. Mr. Gay-Lussac made similar observations about the same time with another compass, and, as his differed some minutes from Mr. B.'s, these two gentlemen have agreed to repeat their observations.

Mr. Biot read a note on the observations of the pendulum made at the two extremities of the meridian line, that is, at Formentera and Dunkirk, and the ellipticity of the earth thence resulting. These observations agree astonishingly with those made at Bourdeaux, Figeacé, and Paris; and their result differs very little from that, which Mr. Delambre deduced from a comparison of his arc with that of Peru, or $\frac{1}{358}$.

Mr. Ramond has examined with great care the application of his coefficient for barometrical measurements to small heights, which were ascertained trigonometrically by M. de Cournon, and finds his correction of that of Laplace equally valid as in higher stations. On the other hand, Mr. Prony, whose barometrical calculation of the height of Mount Cenis differed from that of Mr. Ramond, has found it confirmed by the very careful and repeated measurements of Mr. Daune, during the construction of the road

over it. Mr. P. is employed in concert with Mr. Mathien, of the imperial observatory, in endeavouring to render the barometer so far applicable to the measurement of small heights, that it may be employed in the preliminary operations of planning roads and canals. A small observatory has been built for him over the pediment of the house of the legislature.

In the physical class, Messrs. Gay-Lussac and Thenard have pursued the discovery of Mr. Davy, but they are still of opinion, that the supposed new metals are compounds of the alkalis with hydrogen.

Mr. Gay-Lussac too professes to have made experiments, by which he proves, that gasses, in those proportions in which they are capable of combining with each other, always produce compounds, the elements of which are in very simple ratios. Thus one part of oxygen gas saturates exactly two of hydrogen; fluoric or muriatic gas saturates an equal bulk of ammoniacal gas, and forms a neutral salt; and so of many others. All this he appears to give as his own discovery, without saying a word of the hypothesis of Mr. Dalton, of Manchester.

Mr. Guyton de Morveau, in a series of experiments on the diamond and substances that contain carbon, sought to ascertain the action of the diamond on water at a very high temperature. He found, that the water was decomposed, and carbonic acid produced.

Mr. Sage communicated his inquiries concerning the revival of silver from its nitrat by mercury; on an acetat of ammonia obtained from wood by distillation; an analysis of the calcareous stone, called typographic; on the magnesia contained in shells, madrepores, limestone, and arra-

gonite; on an arenaceous iron ore; on an unknown petrification; and an analysis of a cupreous and ferruginous petrified wood.

Mr. Vauquelin has analysed tobacco, with a view to discover the principles that characterise this plant, and have occasioned it to be selected for the purposes for which it is employed; and also to ascertain the changes occasioned by its preparation as an article of trade. He has found, that it contains animal matter of the nature of albumen, malat of lime with excess of acid, acetic acid, nitrat and muriat of potash, a red matter, the nature of which is unknown, muriat of ammonia, and an acrid and volatile principle, which appears to differ from all others known in the vegetable kingdom. This principle, which imparts to tobacco its well known qualities, may be extracted from the plant by distillation, and employed separately. In prepared tobacco were found, besides the above, carbonat of ammonia and muriat of lime.

As Mr. V. imagined, that the juice of belladonna, from its having similar effects on the animal economy, contained the acrid principle he had discovered in tobacco, he analysed it; but he found only animal matter, salts with base of potash, and a bitter substance, to which the deadly-night-shade owes its narcotic properties.

Mr. Chevreul has made very extensive experiments on vegetable matters. The object of some of these was the bitter principle produced by the action of nitric acid, on organized substances, containing nitrogen, and which had already occupied the attention of Hausmann, Welter, Proust, Fourcroy, and Vauquelin. Mr. C. thinks, that this bitter matter is a compound of nitric acid and an oily or resinous vegetable substance. The detonating property

of this substance, he ascribes to the decomposition of nitric acid, and the formation of ammoniacal gas, prussic acid, oily hydrogen gas, &c.; which agrees in part with the observations of Fourcroy and Vauquelin. With this bitter matter are produced a resinous substance, and a volatile acid, on which Mr. C. has made many experiments, and which he considers as differing from the bitter matter only by a small portion of nitric acid.

Another paper, by the same gentleman, is on the substances formed by the action of the nitric acid on carbonaceous or resinous substances, and which have the property of precipitating gelatin. Mr. C. thinks, that the discoverer of these substances, Mr. Hatchett, is mistaken in considering them as one, and the same with tannin. He conceives, on the contrary, that they differ not only from tannin, but from each other, according to the kind of acid, the quantity that enters into their composition, and the substance from which they are prepared.

Mr. C. has likewise examined the different compounds formed by the action of sulphuric acid on camphor.

Not a year has passed of late without some successful application of chemistry to the arts, so as to afford fresh proofs of the advantages that our manufactures may derive from the sciences. Thus Mr. Chaptal has given us some interesting observations on the distillation of spirits. One of the most important distilleries in the South of France is in fact a Woulfe's apparatus on a large scale.

The same chemist has analysed seven specimens of colours found at Pompeii. Three of these are earths naturally coloured, one greenish, one yellow, and the third a brown red. The fourth is a very light and very white pumice-stone. The fifth, which is of a fine rose-colour, has all the

characters of a lake, and has considerable resemblance to the madder lake, which he has described in his treatise on dyeing cotton. The other two were blues, one pale, but the other deep and rich. They were both produced by a combination of oxide of copper, with lime and alumina, resulting from a commencement of vitrification. As this blue is much superior to verditer, and might be fabricated at a much less expense than

ultramarine, or the blue from cobalt, it would be of great advantage to discover the processes employed by the ancients for producing it.

Mr. Sage has been endeavouring to ascertain the processes best adapted to the extraction of quick-lime, for obtaining solid mortars; the nature of different kinds of stucco; the means of giving the polish of marble to artificial stones; and a process for making soap of white wax.

DISCOVERIES AND IMPROVEMENTS IN ARTS, MANUFACTURES, &c.

Observations upon Luminous Animals.

By J. Macartney, esq.

THE property which certain animals possess of emitting light is so curious and interesting that it has attracted the attention of naturalists in all ages. It was particularly noticed by Aristotle and Pliny amongst the ancients; and the publications of the different learned societies in Europe contain numerous memoirs upon the subject. Notwithstanding the degree of regard bestowed upon the history of luminous animals, it is still very imperfect; the power of producing light appears to have been attributed to the several creatures which do not possess it; some species which enjoy it in an eminent degree have been imperfectly described or entirely unobserved; the organs which afford the light in certain animals have not been examined by dissection; and, lastly, the explanations that have been given of the phenomena of animal light are unsatisfactory, and in some instances palpably erroneous.

As this subject forms an interesting part of the history of organized beings, I had for some years availed myself of such opportunities as

occurred for its investigation. Having communicated the result of some of my researches to the Right Hon. Sir Joseph Banks, he immediately offered me his assistance with that liberality which so eminently distinguishes him as a real lover of science. I am indebted to him for an inspection of the valuable journal he kept during his voyage with Captain Cook; for permission to copy the original drawings in his possession of those luminous animals discovered in both the voyages of Cook; and for some notes upon the luminous appearance of the sea, that were presented to him by Captain Horsburg, whose accuracy of observation is already known to this learned society.

In the following paper I shall first examine the grounds on which the property of shewing light has been ascribed to certain animals that either do not possess it, or in which its existence is questionable. I shall next give an account of some luminous species, of which some have been inaccurately described, and others quite unknown. I shall endeavour to explain, from my own observations, and the information